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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,549	10/01/2003	Gerald Thomas Fattic	DP-310112	7654

22851 7590 06/20/2007  
DELPHI TECHNOLOGIES, INC.  
M/C 480-410-202  
PO BOX 5052  
TROY, MI 48007

EXAMINER
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MARTIN, ANGELA J

ART UNIT	PAPER NUMBER
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1745

MAIL DATE	DELIVERY MODE
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06/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/676,549	<b>Applicant(s)</b> FATTIC ET AL.	
	<b>Examiner</b> Angela J. Martin	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 2-12, 18-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 13-17, 21-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This Office Action is responsive to the Amendment filed on March 16, 2007. The Applicant has amended claims 1, 15, 22. However, a new rejection is presented for the following reasons of record.

#### ***35 U.S.C. 112, Sixth Paragraph***

1. Although claim 21 does include the phrase "means for" that is, the first prong of the 3-prong analysis is met, but the second prong or the third prong of the 3-prong analysis is not met, the claim limitation in claim 21 which uses the phrase "means for" is not being treated under 35 U.S.C. 112, sixth paragraph.

If an applicant wishes to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant must either: (A) amend the claim to include the phrase "means for" or "step for" in accordance with these guidelines; or (B) show that even though the phrase "means for" or "step for" is not used, the claim limitation is written as a function to be performed and does not recite sufficient structure, material, or acts which would preclude application of 35 U.S.C. 112, sixth paragraph. See *Watts v. XL Systems, Inc.*, 232 F.3d 877, 56 USPQ2d 1836 (Fed. Cir. 2000) (Claim limitations were held not to invoke 35 U.S.C. 112, sixth paragraph, because the absence of the term "means" raised the presumption that the limitations were not in means-plus-function form\*\*>and the applicant did not rebut that presumption<.); see also *Masco Corp. v. United States*, 303 F.3d 1316, 1327, 64 USPQ2d 1182, 1189 (Fed. Cir. 2002)

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("[W]here a method claim does not contain the term step[s] for,' a limitation of that claim cannot be construed as a step-plus-function limitation without a showing that the limitation contains no act.")(See MPEP 2181).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 13-17, 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arman et al., U.S. Pat. No. 6,604,364 B1.

Rejection of claims 1, 13-17, 21-25 drawn to a power supply.

Arman et al., teach a power supply, comprising: a fuel cell system for providing a first source of power, said fuel cell system also producing heat waste (col. 2, lines 15-26); a thermionic device for providing a second source of power, said thermionic device providing said second source of power from said heat waste which is provided to said thermionic device (col. 3, lines 53-66); and wherein said heat waste is in fluid communication with a heat exchanger of said thermionic device (col. 3, lines 53-66). A power supply, comprising: a fuel cell system for providing a first source of power, said fuel cell system producing heat waste when said fuel cell is providing said first source of power; a start up combustor for providing another source of heat (col. 3, lines 58-63); an exhaust conduit providing fluid communication between an exhaust of said fuel cell

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system and an exhaust of said start up combustor to a first heat exchanger of a thermionic device (col. 3, lines 53-66), said thermionic device for providing a second source of power from heat received from either said start up combustor or said fuel cell system (col. 3, lines 53-66). The power supply as in claim 13, wherein said heat waste of said fuel cell system is within a range defined by a lower limit of 400 degrees Celsius and an upper limit of 1,200 degrees Celsius when said fuel cell system is providing said first source of power (col. 2, lines 16-45). The power supply as in claim 13, further comprising a second heat exchanger (col. 3, lines 14-17), The power supply as in claim 13, wherein said thermionic device and said start up combustor provide an initial source of power during a warm up phase of said fuel cell system (col. 3, lines 40-63). The power supply as in claim 1, further comprising: a means for providing fluid communication between an exhaust of said fuel cell system and a heat exchanger of said thermionic device (col. 3, lines 40-55). A power supply, comprising: a fuel cell system for providing a first source of power, said fuel cell system producing heat waste when said fuel cell is providing said first source of power; a combustor for providing another source of heat; an exhaust conduit providing fluid communication between an exhaust of said fuel cell system and an inlet of said combustor wherein said combustor heats said exhaust of said fuel cell system to a temperature which causes a first thermionic device coupled to said combustor to provide a second source of power; a first heat exchanger configured and positioned to cool or maintain the temperature of an anode of said first heat exchanger; a second thermionic device configured and positioned to receive heated exhaust of said fuel cell stack, said second thermionic

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device providing another second source of power from heated exhaust received from said fuel cell system (col. 3, lines 1-66).

Arman et al., do not teach the anode of the power supply system.

Cox et al., teach thermionic devices, such as thermionic converters, which transform input heat to electricity, are known in the art. A number of thermionic converters comprise low work function electrodes that convert heat energy to electrical energy with enhanced efficiency.

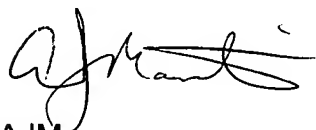
Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Cox et al., into the teachings of Arman et al, because Cox teaches the power supply system comprising thermionic devices typically comprise electrodes to convert heat to electricity.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be 'AJM' followed by a stylized flourish.

AJM